

## Notes on the Rare Fern, *Pteris holttumii* C. Chr.

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### Abstract

*Pteris holttumii* C. Chr. was found in the vicinity of the lowland dipterocarp forest of Dent Peninsula, of Lahad Datu. It is the second record for Malaysia, and the only known record from the lowlands for the species.

### Introduction

There is no comprehensive study on the Sabah ferns reported to date. The only detailed reference available is the work of Christensen and Holttum (1934) on the Mount Kinabalu ferns. The more recent treatments on the subject are rather general or restricted to specific taxa only (Price, 1987; Bidin & R. Jaman, 1989; Bidin, R. Jaman & K.M. Salleh, 1988). The richness of ferns in Sabah as exemplified by Mount Kinabalu, which harbours about 500 species, will only be known once thorough studies have been conducted on the Crocker and Trus Madi Ranges as well as the lowlands.

In one of the many collecting trips to Sabah in search of ferns, the authors came across a handsome fern of the genus *Pteris* in the lowlands of the Tabin Wildlife Reserve of Dent Peninsula (near Lahad Datu, East Sabah, alt. 50 m). The fern, *Pteris holttumii* C. Chr. was found on a steep river bank near a waterfall. Extensive search in the area failed to find the species in other localities. Specimens collected are deposited at the Universiti Kebangsaan Malaysia Herbarium (UKMB) and a live plant brought back is grown in the Fernery of the same University (Fig. 1).

The find constitutes the second record for the species in Sabah. In describing the species in 1934, Christensen wrote: "This splendid new species, which I dedicate to its collector, is the finest novelty discovered in recent years. . . ." The species collected by R.E. Holttum near Dallas Mt. Kinabalu (alt.  $\pm 850$  m) in 1931 was never recorded again in Sabah until the Tabin specimen surfaced. As for the region, the only finding for the species was by Hovenkamp & De Joncheere in Palu, Sulawesi at 500 m (Hovenkamp & De Joncheere, 1988).

### Observations

#### External Features of *P. holttumii*

The gross morphological characters of the species resembles *Acrostichum aureum* in terms of size and divisions of frond. These characters prompted Christensen and Holttum to suggest that *Acrostichum* is derived from the Pterideae.

Rhizomes creep horizontally, slightly beneath ground, bearing solitary fronds at short intervals; thickly covered (especially at stipe base) by long wiry roots. Stipes are



Fig. 1. *Pteris holttumii* growing at the Universiti Kebangsaan Fernery.

grooved on the inner side, scattered, pale to yellowish, hard conicle prickles present. Fronds are simply pinnate; pinnae uniform, basal pinnae not branched on the basiscopic sides near the base, basiscopic side of the base fused to the rachis, each pinna about 40 cm long. Rachises and upperside of costae are grooved, lower costae prominent. Veins are reticulate, forming up to 10 series of aerioles. Sori are marginal, elongated, without inner indusium (Fig. 2 A-E).

#### Endomorphic Characteristics of the Stipe

In transectional view, the stipe is subsulcate in outline enclosing a single vascular bundle which runs throughout the stipe. The bundle is a modified U-shaped strand with a wide base.

Ogura (1972) stressed the importance of the shape of the xylem strand in segregating families and genera of ferns, including relationships among taxa. In *Pteris holttumii* the xylem strand follows the outline of the bundle with both ends curved inside but without hooks, which in Ogura's classification is termed as the non-hippocampus type (Fig. 2B).

#### Summary

*Pteris holttumii* was first collected in Sabah in 1931 and described in 1934. Extensive botanical surveys by later workers in other parts of Borneo (Iwatsuki *et al.* 1980; Iwatsuki & Kato, 1980a, & b, 1981 & 1983a & b) did not include the fern in their lists. With the present finding and that of Hovenkamp and De Joncheere in Sulawesi, it is established here that *P. holttumii* is found in the lowlands as well as at high elevations.

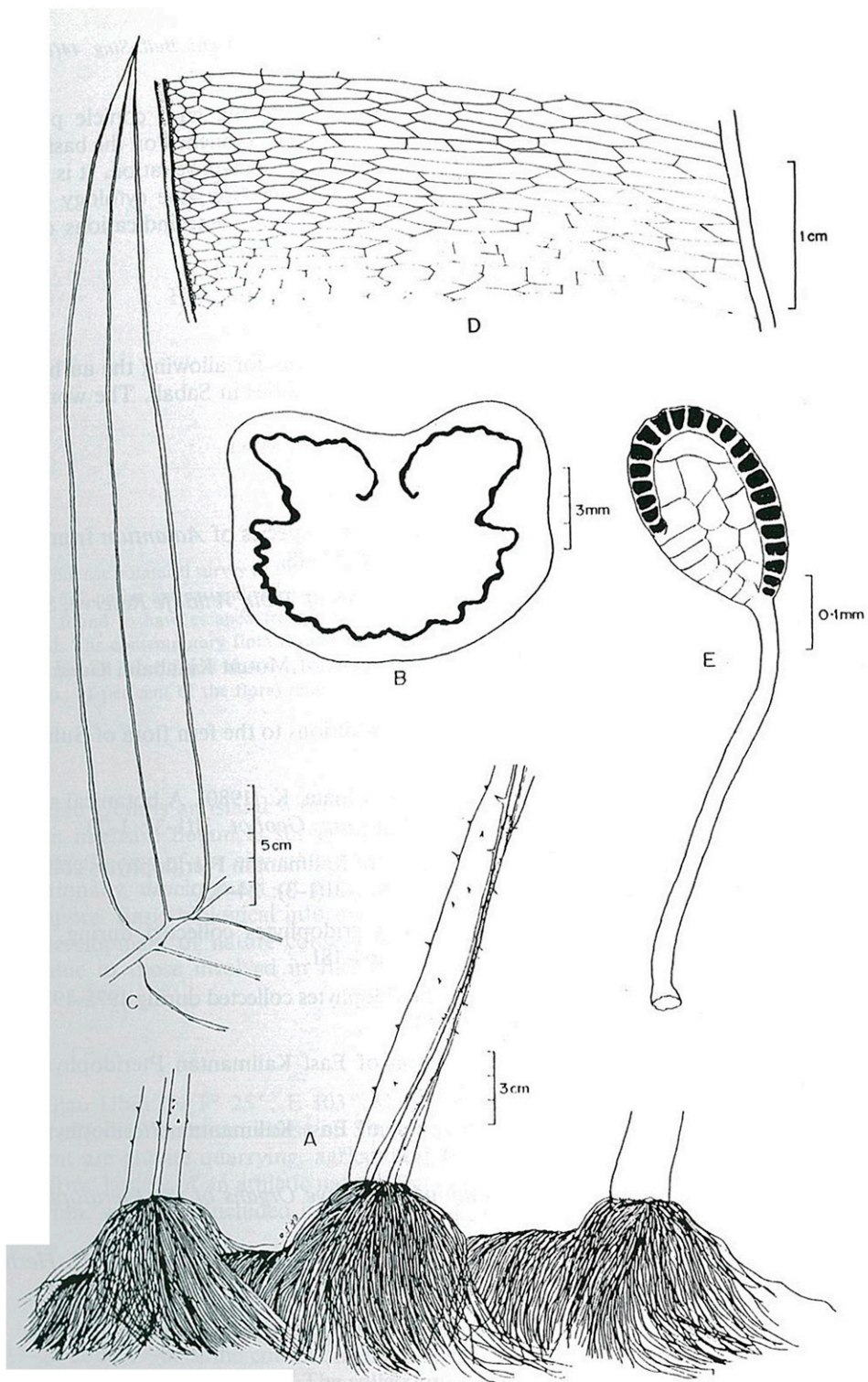


Fig. 2. *Pteris holttumii*. **A**. Part of rhizome, showing roots and stipe bases. **B**. Xylem configuration, middle of stipe. **C**. Part of frond, showing pinnae bases and sori outline. **D**. Vennation of pinna. **E**. Sporangium.

The species differs from the rest of the genus in having hard conicle prickles throughout the stipe as well as in the basal pinnae not being branched on the basiscopic sides near the base. It is the only species in *Pteris* with reticulate venation. It is hoped that with the availability of a live specimen in our collection, the cytology of the species would be determined in due time in order to give some indications on the phylogenetic relationship within the genus.

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